

日期: 2022.9.22. 10:00-11:00 am (Beijing time).

腾讯会议: 944-6444-5344

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题目: Inverting Ray-Knight identities on trees

摘要: We first introduce the Ray-Knight identity and percolation Ray-Knight identity related to loop soup with intensity  $\alpha(\geq 0)$  on trees. Then we present the inversions of the above identities, which are expressed in terms of repelling jump processes. In particular, the inversion in the case of  $\alpha = 0$  gives the conditional law of a Markov jump process given its local time field. We further show that the fine mesh limits of these repelling jump processes are the self-repelling diffusions involved in the inversion of the Ray-Knight identity on the corresponding metric graph. These self-repelling diffusions (studied by Warren-Yor, Aïdékon-Hu-Shi) can be either constructed from burglar or Bass-Burdzy flow. Our work is a generalization of results in papers by Lupu, Sabot and Tarrès, where the authors explore the case of  $\alpha = 1/2$  on a general graph. Our construction is different from theirs and based on the link between random networks and loop soups. This talk is based on a joint work with Yushu Zheng (Fudan).